

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

UNITED STATES OF AMERICA,

Plaintiff,

No. 1:20-cr-24

vs.

Hon. PAUL L. MALONEY
United States District Judge

MUSTAFA DEVILLE REYNOLDS,
also known as “J,”

Defendant.

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**GOVERNMENT’S RESPONSE IN OPPOSITION
TO DEFENDANT’S MOTION TO EXCLUDE CELL SITE ANALYSIS**

The defendant moves to exclude the government’s proposed historical cell site location information evidence because it “uses cell-site data to pinpoint the location of the cell phone to a narrow geographic area—a use which has never been approved by the Sixth Circuit.” (R.89: Def.’s Mot., PageID.540.) The government opposes this motion because it intends to use cell site location information more broadly, to show the general location of cell phones associated with this case at particular points in time. This proposed evidence is scientifically valid, probative, reliable, and relevant. The Court should deny the motion.

I. Background

At trial, the government intends to call Grand Rapids Police Department Detective Thomas Heikkila as an expert in the area of historical cell phone location information analysis. The government provided a copy of his trial presentation on April 28, 2021 and notice of its intent to call him as an expert witness along with his

curriculum vitae on May 2, 2021. The government has previously produced the underlying data from the wireless service providers that Detective Heikkila analyzed to create his trial exhibits.

Detective Heikkila is expected to testify about the attached exhibits¹ that he prepared based on the cell phone records, service provider records, and user accounts for devices associated with this case (specifically, those of the defendant, the decedents, and a cooperating witness). (*See* Ex. 25A, Overview of Data Used.) The historical location data regarding these devices comes in three forms. First, Detective Heikkila will be able to indicate the historical location of decedent A.M.'s device based on its proximity to a wi-fi router in Google records² associated with the device. (*See, e.g.,* Ex. 25B, 25C, 25F, 25G, 25R, 25S, Google Data for A.M.'s device.) Second, Detective Heikkila also reviewed real time tool (also referred to as round-trip time or RTT) data from Verizon Wireless regarding the defendant's device. Detective Heikkila will testify that RTT data is the amount of time it takes for a signal to travel from a cell phone to a tower and return, and that the data includes what tower and sector the phone signal traveled to, and the approximate distance it was from that tower and sector. Detective Heikkila then maps that as an arc, showing the distance from the particular tower/sector. (*See e.g.,* Ex. 25D and 25E.)

Third, Detective Heikkila also considered cell site location information (CSLI),

¹ The attached exhibits are screenshots of a video that Det. Heikkila prepared and that the government anticipates admitting at trial.

² Google also collects GPS data and at least one Google GPS data point from A.M.'s records are included in the video (Ex. 25).

which shows the device being connected to a particular cell tower sector at a particular date and time. (*See, e.g.*, Ex. 25H, 25I, 25J, 25K, 25L, 25M, 25N, 25O, 25P, 25Q.)

Detective Heikkila mapped this data using Trax software developed by a company called ZetX. At the hearing on July 23, 2021, the government will call Sy Ray, the developer of Trax software, who will testify that the software is widely accepted in the scientific community, that there was scientific process for developing the software, that the software has been peer-reviewed and published, and he will explain known error rates. Mr. Ray will go on to opine about the exhibits created by Detective Heikkila and how he confirmed their reliability. Furthermore, Mr. Ray will testify that he is familiar with granularization and that Trax software does not use granularization because it is unreliable. Mr. Ray's curriculum vitae is attached to this motion. (*See* Ex. 40: Curriculum Vitae of Sy Ray.)

The defendant seeks to exclude Detective Heikkila's testimony on the grounds that it is not based on reliable principles and methods.³ (R.89: Def.'s Mot., PageID.544.) Contrary to the defendant's claim, the evidence that the government intends to offer – historical cell site analysis – is scientifically valid, probative, reliable, and relevant. It will also assist the trier of fact in deciding the facts at issue in this case. The United States respectfully submits that this Court should exercise its broad discretion to allow expert testimony concerning historical cell tower

³ The defendant's motion only addresses cell site location information (CSLI), not Google wifi data or Verizon RTT data, and therefore this response will focus on that particular location information and testimony.

analysis.

Detective Heikkila has been qualified and testified as an expert witness on cell phone location data analysis in state court; he also testified regarding historical cell phone location data in federal court. (*See United States v. Javontae White*, 1:19-cr-52-PLM). Detective Heikkila has been a police officer for over 20 years and has received over 400 hours of training and instruction in the use of cellular phones and investigations. (*See Heikkila CV*, attached as Exhibit 41.) He has instructed other local officers in digital evidence seizure, basic techniques for utilizing cell phones in investigations, and laws pertinent to digital evidence. (*Id.*)

If called to testify as an expert in the field of historical cell site analysis and digital evidence review, the government expects Detective Heikkila would testify about basic cell phone operation and how it is possible to learn the general location of a cell phone receiving and making cell phone calls. Detective Heikkila will not testify about a cell phone's precise location using this method of analysis. He would testify that he was provided with certain dates and times relevant to this case and that he reviewed these dates and times in connection with the cell phone records. He would testify that he was able to determine which cell towers the cell phones at issue in this case utilized on the material times, which wi-fi routers pertinent user accounts were near, and the RTT data he found in the defendant's cell phone records.

The principles and methodology that Detective Heikkila will rely upon in this case have been accepted by judges throughout the United States. The defendant has not cited a single case in which a court has concluded that *Daubert* principles should

preclude the admission of the type of testimony that Detective Heikkila will present in this case. Indeed, as discussed further below, one case cited by the defendant that directly addressed the reliability of historical cell site analysis was a Seventh Circuit opinion that affirmed the district court's admission of such analysis. (R.89: Def.'s Mot., PageID.545-45, *citing United States v. Hill*, 818 F.3d 289 (7th Cir. 2016).).

II. Legal Standard

The admissibility of expert testimony is governed by Federal Rule of Evidence 702 and the framework established by the Supreme Court in *Daubert*. Specifically, expert testimony is admissible at trial pursuant to Fed. R. Evid. 702 as set forth below:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if: (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702.

Reynolds objects to the reliability of the methods used. (R.89: Def.'s Mot. 544.) “Four inquiries guide the reliability analysis: Is the technique testable? Has it been subjected to peer review? What is the error rate and are there standards for lowering it? Is the technique generally accepted in the relevant scientific community?” *United States v. Gissantaner*, 990 F.3d 457, 463 (6th Cir. 2021) (citing *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 593-94 (1993)). In *Daubert*, the Court noted that these factors do not constitute a “definitive checklist or test,” and that “[m]any

factors will bear on the inquiry” that involves “a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue.” *Daubert*, 509 U.S. at 592-93. The inquiry to be undertaken by a trial court is “a flexible one” focusing on the “principles and methodology” employed by an expert, not on the conclusions reached. *Id.* at 594-95. Expert testimony, like all other admissible evidence, is subject to testing by “[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof.” *Id.* at 596.

In *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137 (1999), the Supreme Court extended *Daubert* to include expert testimony involving technical and other specialized knowledge. *Kumho Tire*, 526 U.S. at 141. The Court held that a trial court “may consider one or more of the specific factors that *Daubert* mentioned when doing so will help to determine that testimony’s reliability.” *Id.* The Court again noted that a trial court considering the admissibility of expert testimony exercises a gate-keeping function to assess whether the proffered evidence is sufficiently reliable and relevant. *Id.*

III. Numerous Courts Have Affirmed the Reliability of Historic Cell Site Analysis for Establishing the General Location of a Cell Phone.

Testimony about cell phone technology and the ability to determine the general area where calls are placed and received has been admitted in courts throughout the country. As noted above, Detective Heikkila has previously been qualified to offer expert testimony on historical cell site analysis. The science behind how cell phones work is accepted in the scientific and legal community. The defendant has not cited,

and the government has not found, any cases in which a court has excluded a qualified expert from providing testimony on this topic for the purpose of establishing the *general* location of a cellular phone. Rather, courts routinely admit expert testimony of the kind Detective Heikkila is prepared to provide.

The defendant claims that cell site location information can be used to prove only direction of travel or to exclude phones from a particular area. (R.89: Def.'s Mot., PageID.544.) But this Court need look no further than *United States v. Hill*, 818 F.3d 289 (7th Cir. 2016) for an endorsement of the admissibility of historical cell site analysis. While *Hill* cautioned against the possibility of overselling the precision of historic cell site data, it concluded that “[h]istorical cell-site analysis can show with sufficient reliability that a phone was in a general area, especially in a well-populated one.” *Id.* at 298. Likewise, while the “mathematical error rate [of historical cell site analysis] has not been calculated ... the technique has been subjected to publication and peer criticism, if not peer review.” *Id.* Ultimately, the Seventh Circuit held the admission of historical cell site testimony by a government expert was appropriate given the expert’s testimony acknowledging the limitations of the analysis. *Id.*; see also *United States v. Lewisbey*, 843 F.3d 653, 659 (7th Cir. 2016) (holding that “[u]sing call records and cell towers to determine the general location of a phone at specific times is a well-accepted, reliable methodology.”).

Many other courts have endorsed the reliability of the type of testimony Det. Heikkila will present. *United States v. McNeal*, 763 F. App’x 307, 308 (4th Cir. 2019) (“historical cell site analysis has been broadly tested and accepted by the scientific

community and the federal courts alike”); *United States v. Schaffer*, 439 F. App’x 344, 347 (5th Cir. 2011) (affirming admission of cell site analysis and noting that cell site analysis is “neither untested nor unestablished”); *United States v. Grissom*, 760 F. App’x 448, 452 (7th Cir. 2019) (“expert testimony on [location of cell phones] is admissible as long as the expert acknowledges that the data shows only a phone’s approximate location”); *United States v. Machado-Erazo*, 2013 WL 2932399 (D.D.C. June 17, 2013) (historical cell site analysis was based on “scientific knowledge” and thus “admissible under *Daubert*”); *United States v. Davis*, 2013 WL 2156659 (S.D. Fla. May 17, 2013); *United States v. Freeman*, 2015 WL 2062754, at *5 (E.D. Mich. May 4, 2015) (cell site testimony allowed despite defendant’s disagreement about the coverage area depicted in a cell site diagram, which is “really a disagreement with his conclusions, not his methodology”); *United States v. Henderson*, No. CR 10-117 BDB, 2011 WL 6016477, at *4-*5 (N.D. Okla. Dec. 2, 2011); *United States v. Allums*, No. 02:08-CR-30 TS, 2009 WL 806748, at *2-*3 (D. Utah March 24, 2009); *United States v. Benford*, 2010 WL 2346305 (N.D. Ind. June 8, 2010) (denying motion to exclude cell site analysis that would be introduced for purpose of revealing the general vicinity of where a cell phone was located).

The defendant also argues that cell phone analysis is unreliable because phones connect to towers with the strongest signal, which is not always the closest tower. That observation is true but not a basis for exclusion. The court in *United States v. Jones*, 918 F. Supp. 2d 1 (D.D.C. 2013) encountered and rejected such an argument in a motion to exclude historic cell site analysis: “the mere existence of

factors affecting cell signal strength that the expert may not have taken into account goes to the weight of the expert's testimony and is properly the subject of cross-examination, but does not render the fundamental methodology of cell site analysis unreliable." *Id.* at 5. The court went on to find the agent's proposed testimony to be "based on reliable methodology" and noted "the use of cell phone location records to determine the general location of a cell phone has been widely accepted by numerous federal courts." *Id.*

Numerous cases have reached the same conclusion: historical cell site location analysis testimony is sufficiently reliable to be admissible. The defendant's motion is focused largely on the concern that Detective Heikkila will somehow attempt to pinpoint the exact location of certain devices at certain points in time. Not so. This will be addressed during Detective Heikkila's direct testimony, which will emphasize that historical cell site analysis can only convey "general" or "approximate" location information. Detective Heikkila will explain that cell phones connect to the cell tower with which the phone has the strongest, clearest signal but that real world factors, such as obstacles located in the signal path, can affect signal strength and clarity so that the strongest, clearest signal does not always correlate to the closest tower. The net effect of this testimony will make clear to the jury that historical cell site analysis conveys general—not pinpoint accurate—information about phone location, thereby curing the concerns raised by the defendant.

Respectfully submitted,

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